



EFFECTIVE TERM: Summer 2021

Course Identification

COURSE ID: VOC WL70C
[Student Learning Outcomes](#)
COURSE TITLE (FULL): Certification for Welders
COURSE TITLE (SHORT): Certification for Welders
COURSE DIVISION: Continuing Education Division
COURSE DEPARTMENT: Short-Term Vocational
COURSE SUBJECT: Vocational
DISCIPLINE:
TAXONOMY OF PROGRAMS (TOP) CODE: 095650 *Welding Technology
CROSS LISTED COURSE:

Course Attributes

CREDIT STATUS: N – Noncredit
TRANSFER STATUS: C Not Transferable
COURSE BASIC SKILLS STATUS: Not a Basic Skills Course
STUDENT ACCOUNTABILITY MODEL (SAM) CODE: C - Clearly Occupational
COURSE CLASSIFICATION STATUS: K Other Noncredit Enhanced Funding
FUNDING AGENCY CATEGORY: Not Applicable
COURSE PROGRAM STATUS: 1 - Program Applicable
REPEATABILITY: Noncredit Repeatable
GRADING METHOD: Pass or No Pass
CREDIT BY EXAM: Not Allowed
WORK EXPERIENCE: Not part of co-op work experience education program

**Course Workload Values**

Faculty Contact Hours	Lecture	Laboratory	Activity	Total
Minimum Contact Hours	18	108		126
Maximum Contact Hours				
Minimum Out of Class Hours	1			1
Maximum Out of Class Hours	36			36
Total Minimum Student Learning Hours	19	108		127
Total Maximum Student Learning Hours	36			36

Unit Value	Lecture	Laboratory	Activity	Total
Minimum Units				
Maximum Units				

To Be Arranged (TBA) Hours	Lecture	Laboratory	Activity	Total
Minimum To Be Arranged (TBA) Hours				
Maximum To Be Arranged (TBA) Hours				
Scheduled Hours				

METHODS OF INSTRUCTION

- ☐ Lecture
☐ Laboratory
☒ Lecture and Laboratory
☐ Open Entry/Exit
☐ Independent Studies
☐ Work Experience
☐ Other To Be Arranged (TBA)

Class Size: 0**Requisites**

Advisory WELD 70B Intermediate Arc Welding	
Advisory VOC WL70B Intermediate Arc Welding	or



Course Outline with Information

CATALOG DESCRIPTION

Building construction for the advanced arc welding student. Special emphasis will be placed on welding symbols and the American Welding Society's (AWS) D1.1 and D1.3.

SCHEDULE DESCRIPTION

Building construction for the advanced arc welding student. AWS D1.1 and D1.3 will be reviewed.

MEASURABLE OBJECTIVES

1. Read and interpret welding and building codes in the area of light gauge and heavy material of the construction industry.
2. Identify modern welding practices.
3. Evaluate finished welds for defects by visual and bend inspections.
4. Demonstrate proper and safe usage of welding equipment and practices by written and practical tests.
5. Compare and contrast SMAW and FCAW processes for appropriateness of code welding.

LECTURE TOPICAL OUTLINE

- Safety concepts in welding, heat radiation hazards, electrical fire hazards
- Certification versus qualification by on-the job experience only
- Review of electrodes identification - Review of welding symbols
- Vertical single vee groove test plate - Design of welded connections - Overhead single vee groove test plate
- FCAW vertical vee groove test plate
- Inspection, stud welding, and strengthening and repairing existing structures - Heavy material structural steel
- Light gauge certification test plates
- Simulated test for heavy material structural steel
- Design of welded connections and pre-qualification
- Fabrication, inspection, and stud welding
- Final exam

LABORATORY TOPICAL OUTLINE

- Reviewing oxy-fuel cutting (proper usage of oxy-acetylene track cutter)
- Reviewing shielded metal arc welding (SMAW) E7018 all position (review of all position welding)
- Demonstrating SMAW vertical V groove test plate (fill passes)
- Demonstrating SMAW vertical V groove test plate (root passes)



- Demonstrating SMAW vertical V groove test plate (cap passes)
- Covering flux cored arc welding (FCAW) NR-212 V Groove test plate (flat position test plate)
- Demonstrating FCAW NR-232 overhead V groove test plate (root passes)
- Demonstrating FCAW NR-232 overhead V groove test plate (fill passes)
- Demonstrating FCAW NR-232 overhead V groove test plate (cap passes)
- Demonstrating light gage E6010 & E6011 test plates for certification
- Demonstrating FCAW NR-232 vertical V groove test plate (root passes)
- Demonstrating FCAW NR-232 vertical V groove test plate (fill passes)
- Demonstrating FCAW NR-232 vertical V groove test plate (cap passes)
- Demonstrating light gage E7018 test plates for certification

METHODS OF EVALUATION

Category 1. Substantial written assignments for this course include:

If the course is degree applicable, substantial written assignments in this course are inappropriate because:

- This course primarily involves skills, demonstrations or problem-solving in building construction for the welding student

Category 2. Computational or non-computational problems solving demonstrations

- Performance of correct pre-heat and inter-pass temperature control
- Proper amperage adjustment for both structural thickness material and light gage material

Category 3. Skills Demonstrations

- Vertical single vee groove test plate
- Overhead single vee groove test plate

Category 4. Objective Examinations

- Written practice exams in preparation for L.A. City Structural Welders' Certification written exam consisting of multiple choice questions supported by citations from the AWS D1.1 Structural Welding Code
- Written quizzes on weld symbols in preparation for L.A. City written certification exam

SAMPLE ASSIGNMENTS



COURSE OUTLINE: VOC WL70C

2/23/2024

1. Practice in the vertical and overhead position in preparation for the certification area of structural steel manual, semi-automatic or light gauge.
2. Complete a given project simulating L.A. City test structural steel.
3. Conduct destructive testing measures on weld samples and differentiate between acceptable and unacceptable quality welding.
4. Perform cutting, grinding and polishing techniques for preparing weld samples.